

Airbus developing reusable space rocket launcher

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The Ariane, built by Airbus Defence and Space. Airbus has unveiled plans for a reusable space rocket launcher that should be ready in 2025

European aircraft and aerospace giant Airbus has unveiled plans for a reusable space rocket launcher that should be ready in 2025, which the firm says will be radically different from the concept of rival US firm Space X.

Airbus must overcome significant technical and financial challenges, while the Space X company owned by South African-born billionaire Elon Musk, co-founder of PayPal, is already experimenting with its model.

Since 2010, a team of engineers has been secretly working at an Airbus warehouse at Les Mureaux, just outside Paris, looking for ways to reuse space rocket launchers.

They have a difficult task ahead because they must ensure that reuse ends up costing less than sticking to classic single-use models.

Now, as they give journalists access to their site, it appears their project might end up working.

Airbus has baptised the two phases of its reusable launcher concept Adeline and Space Tugs.

"The main stage launches and operates the rocket in the first phase of its journey. The later stage comes into action in the second part," said Francois Auque, director of Airbus's Defence and Space programme.

Adeline, which stands for ADvanced Expendable Launcher with INnovative engine Economy, is original because it combines space technology with aeronautics, said Herve Gilibert, technical director at Airbus Defence and Space.



An inflatable scale size model of "Adeline", short for Advanced Expendable Launcher with Innovative engine Economy, a reusable Ariane rocket first-stage engine and avionics package, a project hoping to be operational in 2025-2030

"In order to reuse the main stage, we bring back the most expensive parts and try to make them in a way that they become much cheaper to reuse them than to make new ones," Auque said.

The idea is to recover the propulsion bay and the engine, which account for 80 percent of the launcher's total value, by putting them behind a heat shield that will protect them as they come back to Earth.

Like a plane

Adeline comes in the form of a stabiliser at the base of a launcher, and is

outfitted with little wings and a turboprop engine. As with most aircraft, fuel is stored in the wings.

The Space Tugs concept calls for devices that will hover at an altitude of 1,000 kilometres (620 miles), which would be refuelled by new launchers with the help of satellite technology.

The plan is "to stock them up in a [space](#) 'car park'" for future use, Auque said.



A subscale model of "Adeline", short for Advanced Expendable Launcher with Innovative engine Economy, a reusable Ariane rocket first-stage engine

Once Adelines have completed their mission, they are flown remotely like a drone to a landing strip.

As for how the reusable launchers would work, the principle is to have them take off like normal rocket, but land like a plane, said Auque, who wants to reuse the engine 10 or 20 times.

Gilibert meanwhile claims the Airbus project is superior because it is being designed to withstand more reuse than Space X's version.

Space X's project is also different because its launcher is being built to land on a vessel at sea.

Airbus estimates its module will require two tonnes of fuel to be brought back to Earth—half the amount its rival will need.

In terms of financing, the company is aiming for a 30 percent gain on the launcher's operating costs—estimated at \$70 million (63 million euros) for the upcoming Ariane 6.2 [launcher](#) model that is equipped with a dual rocket booster.

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